REMARKS/ARGUMENTS

The arguments and amendments presented herein include the arguments and amendments Applicants discussed with the Examiner during a phone interview on April 29, 2007. During the phone interview, Applicants and the Examiner discussed amendments to the claims to overcome the indefiniteness, statutory subject matter, and prior art rejections, which the Examiners indicated would likely overcome the rejections. Applicants submit the arguments and amendments of the phone interview herein to make the substance of the phone interview of record to comply with 37 CFR 1.133. If the Examiner believes that further information on the interview needs to be made of record to comply with the requirements, Applicants request the Examiner to identify such further information.

1.   The Amended Claims Comply with 35 U.S.C. §112, par. 2

The Examiner rejected claims 13, 25, and 40 on the grounds that the term "iSCSI" and "TCP" are trademarks or trade name. (Office Action, pgs. 2-3) During the phone interview, Applicants discussed amending these claims to include the specific name of the protocols that were intended to clarify that these terms were denoting a specific standard communication protocol to overcome this rejection.

Applicants amended the claims to recite the full names of the standard communication protocols for iSCSI, TCP, and LAN. These amendments are disclosed in paras. [0002], pg. 1, [0006], pgs. 2-3, and [0010], pg. 4.

Applicants submit that these amendments over come the definiteness rejection.

The Examiner rejected claims 10, 23, and 37 on the grounds that the use of the term "less than" was not definite. (Office Action, pg. 3) Applicants traverse with respect to the amended claims.

Applicants amended claims 10 23, and 37 to recite that the devices determined in the device hardware for which device objects are generated comprise less than all the devices included in the device hardware. FIG. 1 shows multiple devices 30a, 30b, 30c included in the device hardware of the network adaptor 12.

Applicants submit that the claims are definite because they recite that the determined devices for which device objects are generated comprise less than all the devices that are

included in the device hardware. Applicants submit that these amendments over come the indefiniteness rejection.

2.   The Amended Claims 14-25 and 28-40 Comply with 35 U.S.C. §101 Rejection

The Examiner rejected claims 14-25 as directed to non-statutory subject matter (35 U.S.C. §101) as directed to a software program not stored within any physical structure. (Office Action, pgs. 3-4)

During the phone interview, Applicants discussed that claims 14-25 recite a system including a processor and programs executed by the processor. Thus, the claims provide a physical structure, i.e., the system, having the device interface driver and operating system. The Examiners indicated that presenting these arguments would likely overcome the Section 101 rejection with respect to claims 14-25.

The Examiner rejected claims 28-40 as directed to non-statutory carrier waves. Applicants amended claim 28 to recite that the article of manufacture comprises "a computer readable storage medium including computer executable code". This added requirement is disclosed in para. [0022], pgs. 9-10 of the Specification.

Applicants note that the amended language differs from the language Applicants proposed. Nonetheless, Applicants submit that reciting that the article of manufacture comprises "a computer readable storage medium including computer executable code" overcomes the non-statutory subject matter rejection that the article of manufacture includes carrier waves, which the Examiner believes are non-statutory.

Although Applicants amended claim 28 to overcome the non-statutory subject matter rejection, Applicants are not conceding in this application that claim 28 in its pre-amended form is invalid for being directed to non-statutory subject matter, as the present claim amendments are only for facilitating expeditious prosecution of the allowable subject matter. Applicants respectfully reserve the right to pursue these and other claims in this present application and one or more continuations and/or divisional patent applications.

The Examiner further found that it appears that there is no tangible result achieved from reporting the determined devices to the operating system. (Office Action, pg. 4) Applicants traverse. Applicants submit that reporting devices to the operating system produces a tangible result, in that this information is reported to the operating system. Further, the claims recite the

useful result of this operation as the "operating system loads a device driver for each of the reported devices supported by the device hardware."

Accordingly, Applicants request that the Examiner withdraw the Section 101 rejection.

3.   Claims 1, 2, 4-15, 17-29, and 31-40 are Patentable Over the Cited Art

The Examiner rejected claims 1, 2, 4-15, 17-29, and 31-40 as anticipated (35 U.S.C. §102) by Kim (U.S. Patent Pub. No. 2002/0069245). Applicants traverse with respect to the amended claims.

During the phone interview, Applicants discussed with the Examiners amending the claims to clarify that the plurality of devices are included in the device hardware. The Examiners indicated that amending the claims in this manner would distinguish over the cited art. Applicants amended the claims as discussed and submit that the amended claims and dependent claims are patentable over the cited art for the following reasons.

Amended claims 1 and 28 concern interfacing with device hardware supporting a plurality of devices included in the device hardware, and require: initializing a device interface driver to represent the device hardware as a virtual bus to an operating system and to represent to the operating system each device supported in the device hardware as a device attached to the virtual bus; initializing the device hardware; accessing the device hardware to determine the devices included in the device hardware; generating one device object for each determined device in the device hardware, wherein each generated device object represents the determined device to the operating system; and reporting the determined devices to the operating system, wherein the operating system loads a device driver for each of the reported devices supported by the device hardware.

Applicants amended these claims to recite that the plurality of devices are included in the device hardware. This added requirement is disclosed in FIG. 1 which shows devices 20a, 20b, 20c included in the device hardware which in the embodiment of FIG. comprises a network adaptor 12.

The Examiner cited paras. 110 and 113 with respect to the requirement of initializing a device interface driver to represent the device hardware as a virtual bus to an operating system and to represent to the operating system each device supported in the device hardware as a device attached to the virtual bus. (Office Action, pg. 5) Applicants traverse.

The cited para. 110 discusses a NAD port driver, for a network attached disk, and a NAD bus driver implementing a virtual host bus adaptor through which disk IO operations are done to and from a set of NAD devices. The cited para. 113 mentions a root bus driver that connects the computer to all hardware that cannot electronically announce its presence, including the hardware bus. Para. 126 discusses now a virtual bus driver is attached to NAD ports, where the individual network cards (NICs) of the host are realized as NAD ports.

Although the cited paras. 110, 113, and 126 discuss NAD ports representing network cards that can connect to the NADs, which are attached to a virtual host bus adaptor, nowhere is there any disclosure of the claim requirements of representing device hardware including a plurality of devices as a virtual bus and representing to the operating system each device in the device hardware as a device attached to the virtual bus. Instead, the cited Kim discusses how NIC cards may be represented as NAD ports connected to a virtual bus, where the NAD devices are "physically separate from the system". See, para. 127, pg. 8. There is no disclosure in the cited Kim of representing a plurality of devices included and supported in device hardware as devices attached to a virtual bus. Instead, the cited supported NAD devices are separate from the system, and not included in a device represented by the virtual bus.

The Examiner cited paras. 108 and 112 as disclosing the generating one device object limitation (Office Action, pg. 5), which now recites generating one device object for each determined device in the device hardware, wherein each generated device object represents the determined device to the operating system; and

The cited para. 108 that a bus refers to hardware to which devices connect and that a bus driver enumerates devices attached to the bus to create device objects for each enumerated device. Although the cited para. 108 discusses creating device objects for devices attached to the bus, nowhere does the cited para. 108 disclose generating device objects for devices included in a hardware device represented by a virtual bus. In other words, the cited physical bus of para. 108 does not disclose a virtual bus representing a hardware device including devices represented by device objects that are represented to the operating system attached to the virtual bus.

The cited para. 112 mentions that each device in Windows 2000 is represented as device objects organized in a stack structure to help software manage the hardware. These data structures can exist for a single piece of physical hardware. The lowest level device object is a physical device object (PDO), and above the PDO is a functional device object (FDO).

Although the cited para. 112 discusses creating device objects for physical hardware, nowhere does the cited para. 112 anywhere disclose representing device hardware as a virtual bus. Further, nowhere does the cited para. 112 anywhere disclose representing each device included in the device hardware as a device attached to the virtual bus, and generating a device object for devices included in device hardware represented by a virtual bus.

Accordingly, claims 1 and 28 are patentable over the cited art because the cited Kim does not disclose all the claim requirements.

Claims 14 and 26 substantially include the requirements of amended claims 1 and 28 and additional recite a network adaptor including devices instead of device hardware including devices as recited in claims 1 and 28. Applicants submit that claims 14 and 26 are patentable over the cited art for the reasons discussed with respect to claims 1 and 28.

Claims 2, 4-13, 15, 17-26, 27, 29, and 31-40 are patentable over the cited art because they depend from one of claim 1, 14, 26, and 28, which are patentable over the cited art for the reasons discussed above. Moreover, the following dependent claims provide additional grounds of patentability over the cited art.

Claims 4, 17, and 31 depend from claims 1, 14, and 28, respectively, and additionally require that the hardware device comprises a network adaptor and wherein each device available in the network adaptor supports a protocol engine for different communication protocols.

The Examiner cited paras. 47, 151, 152, 154, and 155 as disclosing the additional requirements of these claims. (Office Action, pg. 6) Applicants traverse.

The cited paragraphs discuss protocol layers, such as a network layer, data link layer, transport layer, etc. These protocol layers comprise drivers or code that performs certain operations to transmit commands to the NAD devices in the network. The claims require that devices in the network adaptor hardware devices comprise protocol engines. Nowhere do the cited paragraphs disclose that devices included in the network adaptor hardware, for which device objects are generated, comprise protocol engines. Instead, the cited paragraphs discuss protocol layers and drivers in the operating system used to pass commands to the NAD devices.

Accordingly, claims 4, 17, and 31 provide additional grounds of patentability over the cited art because the additional requirements these claims are not disclosed in the cited art.

Claims 9, 22, and 36 depend from claims 1, 14, and 28, respectively, and further require that all the device drivers access devices supported by the device hardware through the device interface driver.

The Examiner cited para. 113 and FIG. 2 of Kim as disclosing the additional requirements of these claims. (Office Action, pg. 7) Applicants traverse.

The cited para. 113 mentions device stacks that are created and that a driver connects the computer to the hardware that can't electronically announce its presence, including hardware bus such as PCI.

Nowhere does the cited para. 113 disclose that the device drivers access devices supported by the device hardware that are, per the base claims, included in the device hardware (or network adaptor for claim 22). Nowhere does the cited para. 113 disclose device driver accessing devices included in the device hardware.

Accordingly, claims 9, 22, and 36 provide additional grounds of patentability over the cited art because the additional requirements these claims are not disclosed in the cited art.

4.   Claims 3, 16, and 30 are Patentable Over the Cited Art

The Examiner rejected claims 3, 16, and 30 as obvious (35 U.S.C.§103) over Kim in view of Malueg (U.S. Patent Pub. No. 2004/0003300)

First off, these claims are patentable over the cited art because they depend from one of 1, 14, and 28, which are patentable over the cited art for the reasons discussed above. Moreover, the additional requirements of these claims provide further grounds of patentability over the cited art.

Claims 3, 16, and 30 further require reporting to the operating system that a power state of the virtual bus represented by the device interface driver cannot be altered until all the device drivers representing devices attached to the virtual bus have their power state similarly altered.

The Examiner cited para. 44 and FIGs. 10, 11, and 12 of Malueg as teaching the additional requirements of these claims concerning the power state. (Office Action, pg. 10) Applicants traverse.

The cited para. 44 mentions that a power manager arbitrates requests to change state received from drivers 200, 202, and 204 and applications 220 and 222. A driver will not be allowed to transition a component device to a lower state if an application has requested a higher

state. The cited FIGs. 10, 11, and 12 discuss device power requirements and handling a request to lower power state that conflicts with device power requirements.

Although the cited Malueg discusses adjusting the power state of devices, nowhere does the cited Malueg anywhere teach that a power state cannot be altered until all the device drivers representing devices attached to the virtual bus have their power state similarly altered. There is no mention in the cited Malueg that the power state of one device cannot be altered until the power state of other devices in the same hardware device have their power state altered. Instead, the cited Malueg discusses whether a power state transition exceeds a high or low requirement for the device.

Accordingly, claims 3, 16, and 30 provide additional grounds of patentability over the cited art because the additional requirements these claims are not disclosed in the cited art.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-40 are patentable. Should any additional fees be required beyond those paid, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

Dated: May 29, 2007   By: /David Victor/

                                              David W. Victor
                                              Registration No. 39,867

Please direct all correspondences to:

David W. Victor
Konrad Raynes & Victor, LLP
315 South Beverly Drive, Ste. 210
Beverly Hills, CA 90212
Tel: (310) 553-7977
Fax: 310-556-7984